DETAILED ACTION

Status of Claims

1. This action is in reply to the Application filed on 26 September 2003.

2. Claims 1-20 are currently pending and have been examined.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 3, 12, and 13 recite the limitation "*warehouse configuration*" in Claims 2, 3, 12, and 13. It is not clear what the scope of this term is. For example, with respect to claim 2, claim 1 recites "management configuration" and "warehouse node", wherein the warehouse node is selected from said plurality of nodes. Claim 2 recites "selecting at least one warehouse configuration fro said plurality of nodes". It is not clear in terms of claim scope what the relationship is between the warehouse configuration and the warehouse node as both are selected from the plurality of nodes. Clarification is required. Claim 3 depends from claim 2 and therefore has the same deficiencies. Claim 12 recites substantially similar subject matter as claim 2 and therefore is rejected using the same rationale as claim 2. Claim 13 depends from claim 12 and therefore has the same deficiencies.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Agarwal et al (Agarwal) (U.S. Pub. No. 2003/0101107).

7. **CLAIM 1:**

With regard to Claims 1, Agarwal teaches *a method of optimizing spare component management* ((spares), calculate an optimal inventory policy) (see at least paragraph 0017) *for a network* (supply chain network) *having a plurality of nodes* (composed of several nodes, A node is a point in the supply chain network) (see at least paragraph 0025), *comprising:*

- *obtaining availability parameters associated with an inventory of spare* (inventory requirements, including spare parts (spares)) (see at least paragraph 0017) *components* (inventory information data is then available for use by a client/customer) (see at least paragraph 0034).
- *determining a plurality of management configurations* (inventory management system, considers a number of supply-demand constraints) *in response to said availability parameters, each of said plurality of management configurations comprising at least one warehouse node* (node, warehouse) *selected from said plurality of nodes* (several nodes) (see at least paragraphs 0023-0027) *and a quantity of spare components in said inventory to be stored at said at least one warehouse node* (a company may have inventory at multiple locations, such as warehouses) (see at least paragraph 0039).

8. **CLAIMS 11, 19, and 20:**

With regard to Claims 11, 19, and 20, these claims are substantially similar to the *method* Claim 1 as a *computer readable medium, apparatus, and system* and are rejected for the same rational as set forth above in Claim 1.

9. CLAIMS 2 and 12:

With regard to Claims 2 and 12, Agarwal teaches:

- *selecting at least one warehouse node for said plurality of nodes* (two warehouses) (see at least paragraph 0026).
- *repeating said determining step for each said warehouse node* (The lateral transfer process continues to process block 104 w[h]ere inventory levels are continuously verified) (see at least paragraph 0039).

10. CLAIMS 3 and 13:

With regard to Claims 3 and 13, Agarwal teaches *wherein said at least one warehouse node comprises a distributed warehouse node* (supplying product to a set of warehouses owned by another company) *and a centralized warehouse node* (supplying a product to a set of its own warehouses) (see at least paragraph 0027).

11. CLAIMS 4 ands 14:

With regard to Claims 4 and 14, Agarwal teaches *wherein said inventory of spare components* (components) *is defined by a plurality of component types* (imperfect or non-operational) (see at least paragraph 0078), and said availability *parameters comprise at least one of a* ***failure rate*** (failed components), *a minimum repair time, a* ***restocking time*** (replenish the

inventory) (see at least paragraph 0017), *and a* ***stockout probability*** (probability of at least one stockout) (see at least paragraphs 0085-0087) *associated with each of said plurality of component types.*

12. CLAIMS 6 and 16:

With regard to Claims 6 and 16, Agarwal does teaches *wherein, for each of said plurality of management configurations, said expected downtime of said network is further computed using delivery times* (time supply) *from said at least one warehouse node to remaining ones of said plurality of nodes* (ensure that all nodes are being replenished at the same time, balance time supplies) (see at least paragraphs 0058-0062).

13. CLAIMS 8 and 18:

With regard to Claims 8 and 18, Agarwal teachs:

- *obtaining a target stockout probability for each of said plurality of component types* (expected probability of a stockout) (see at least paragraphs 0096).
- *for each of said plurality of management configurations, computing said quantity of spare components to be stored* (safety stock level) *at said at least one warehouse node by adjusting* (are plugged into the equation until a satisfactory stock out probability is obtained) *a quantity of each of said plurality of component types until said respective stockout probability is less than or equal to* (one (1) minus the probability that there will be no failures) *said respective target stockout probability* (see at least paragraphs 0096-0108).

14. CLAIM 9:

With regard to Claim 9, Agarwal teaches wherein said inventory of spare components (spare parts (spares) is obtained dynamically from said network (provide a dynamic, minimum time-phased method of inventory asset management) (see at least paragraph 0017).

15. CLAIM 10:

With regard to Claim 10, Agarwal teaches wherein said availability parameters are obtained dynamically from said network (inventory requirements, optimal inventory policy) (see at least paragraph 0017).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 5-7 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal as applied to claims 1-4, 8-14, and 18-20 above, and further in view of Huang U.S. 6,151,582).

18. CLAIMS 5 and 15:

With regard to Claims 5 and 15, Agarwal does not specifically teach *for each of said plurality of management configurations, computing an expected downtime of said network using*

said minimum repair time associated with at least one of said plurality of component types. Huang teaches *for each of said plurality of management configurations, computing an expected downtime* (estimate repair time) *of said network using said minimum repair time* (estimate repair time requirements) *associated with at least one of said plurality of component types* (with respect to resource constraints which are repair resource capacities and key component availability) in analogous art of managing an agile supply chain for the purposes of "...a process to determine the repair plan considering repair people, test equipment and key components" (see at least column 17, lines 1-36).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the inventory management system of Agarwal would have benefited from the teachings of Huang. The result would be, "...a process to determine the repair plan considering repair people, test equipment and key components" (Huang, column 17, lines 1-36).

19. CLAIMS 7 and 17:

With regard to Claims 7 and 17, Agarwal does not specifically teach *obtaining a critical repair time associated with each of said plurality of component types; and for each of said plurality of management configurations, computing a number of expected critical repair time violations.* Huang teaches obtaining a critical repair (repair supply chain, Other critical characteristics, e.g., total running time) (see at least APPENDIX B, column 131, lines 46-67) associated with each of said plurality of component types in analogous art of service parts inventory planning and management for the purposes of, "...estimating future requirements refers to the process of estimating failures of the equipment and of the repairable parts that caused the failures. This is done to estimate repair time requirements (determined in Requirements-Supply Reconciliation Planning Process) and equipment availability at equipment locations, both of which depend on the part that has failed" (see at least column 16, lines4-16).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the inventory management system of Agarwal would have benefited from the teachings of

Huang. The result would be, "…estimating future requirements refers to the process of estimating failures of the equipment and of the repairable parts that caused the failures. This is done to estimate repair time requirements (determined in Requirements-Supply Reconciliation Planning Process) and equipment availability at equipment locations, both of which depend on the part that has failed" (Huang, column 16, lines 4-16).

Agarwal does not specifically teach for each of said plurality of management configurations, computing a number of expected critical repair time violations. Huang teaches *for each of said plurality of management configurations, computing a number of expected critical repair time violations* in analogous art of service parts inventory planning and management for the purposes of "Ability to identify violated constraints" (see at least column 68, lines 32-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the inventory management system of Agarwal would have benefited from the teachings of Huang. The result would be, "Ability to identify violated constraints" (Huang, column 68, lines 32-34).

Conclusion

20. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Scheer (U.S. 7,313,534) discloses a predictive maintenance and service parts fulfillment in a supply chain.
- Ebert et al (U.S. Pub. No. 2003/0227392) discloses a context-aware and real-time item tracking system architecture and scenarios.
- Garg, "An application of designing products and processes for supply chain management", IIE Transactions (1999), 417-429, discloses an objective to reduce the costs of complexity resulting from a proliferation of parts and processes in the manufacturer's supply chain.

- Cohen et al, "After-sales Service Supply Chains: A Benchmark Update of the North American Computer Industry", Fishman-Davidson Center for Service and Operations Management, The Wharton School, University of Pennsylvania, August 12, 1999, discloses benchmark analysis of service parts logistics supply chains used to support after sales service in the computer industry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS MANSFIELD whose telephone number is (571)270-1904. The examiner can normally be reached on Monday-Thursday 8:30 am-6 pm, alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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